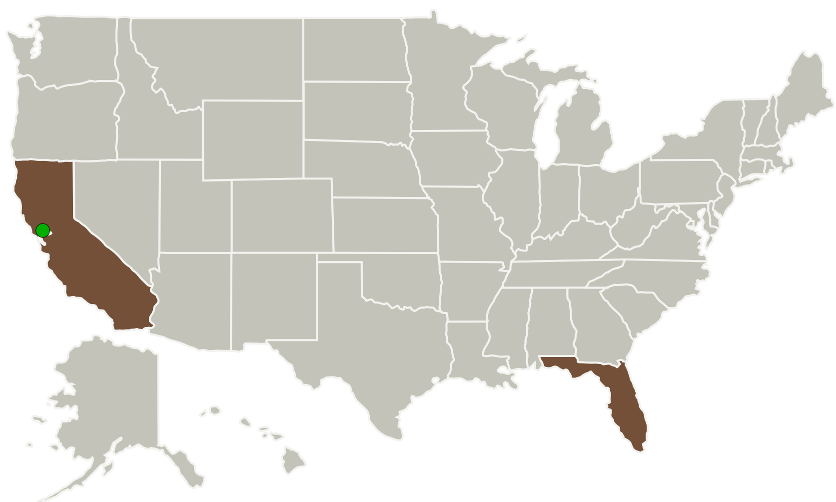
3D Print and Play Payload (P3) Systems, Phase I

Completed Technology Project (2011 - 2011)

Project Introduction

The proposed effort will make a dramatic improvement in a) size, weight and power based on a transformative approach to manufacturer 3D electronics as well as 2) ease of integration by exploiting standards efforts in the Space community and specifically CubeSat. The most significant contribution we will make is in next generation packaging through the use of Additive Manufacturing of Structural Electronics. The concept of "Plug and Play" implies simple and compatible, but it also implies traditional modular packaging for a specific form factor. By eliminating solder, wire bonds, connector, excess silicon and excess substrate, the possibility exists to shrink an electronic system by more than 100 times. This 100 fold shrinkage will apply to both size and weight and the newly available volume could be applied to power generation and storage. By extending the plug and play concept to "3D Print and Play" – in which entire satellites will be fabricated layer-by-layer into a monolithic, intelligent, conformal structure. Consequently, the development time is radically reduced, not from "months to days" but rather "days to hours," by automating the manufacturing component of development.

Primary U.S. Work Locations and Key Partners



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Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
nScrypt, Inc.	Lead Organization	Industry	Orlando, Florida
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Florida

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:
- Final Summary Chart*(https://techport.nasa.gov/file/137799)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

nScrypt, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

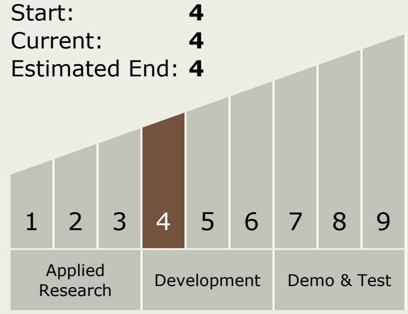
Carlos Torrez

Principal Investigator:

Mike Newton

Technology Maturity (TRL)

Start: **4**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  - └─ TX02.1 Avionics Component Technologies
    - └─ TX02.1.2 Electronic Packaging and Implementations

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System